Symptom Responses of Female Vietnam Veterans to Operation Desert Storm

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Objective: This study examined the status of symptoms of posttraumatic stress disorder (PTSD) in a cohort of women after the onset of Operation Desert Storm. Method: Seventy-six non-treatment-seeking Vietnam veterans were obtained from lists of those who recently had participated in other research projects conducted at the National Center for Post-Traumatic Stress Disorder. Before the onset of Operation Desert Storm, subjects had completed a set of psychometrically valid instruments measuring general psychological symptoms and PTSD symptoms (e.g., SCL-90-R, Mississippi Scale for Combat-Related Posttraumatic Stress Disorder). On the basis of the latter scale, subjects were divided into groups with and without PTSD symptoms. At the height of the military conflict, subjects were recontacted and asked to complete the SCL-90-R and the Veterans Update Form, a measure assessing changes in PTSD symptoms. Results: Multivariate analyses indicated that while most female Vietnam veterans experienced some intensification of stress-related symptoms during Operation Desert Storm, those who had previously reported high levels of PTSD were significantly more susceptible to greater distress. Conclusions: Results of this survey indicate that female Vietnam veterans with prior wartime exposure are an at-risk population for the intensification of stress symptoms after the recurrence of a military conflict.

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Events that resemble prior traumatizing experiences can reactivate symptoms of posttraumatic stress disorder (PTSD) (1–3). For example, some combat veterans have shown a reemergence or exacerbation of previous stress reactions when they are reexposed to combat in the course of additional military service (4). Similarly, Israeli children who have lost parents in terrorist attacks have evidenced the reemergence or exacerbation of PTSD symptoms when reexposed to war or further terrorist activities (5). In all of these instances, direct reexposure to events similar to the original precipitant resulted in significantly increased symptoms.

Other data suggest that indirect exposure or exposure to more abstract cues, for example, those symbolizing aspects of the original event, can provoke reactions in some individuals. For example, case studies of three male Vietnam veterans following their attendance at a dedication ceremony for the Vietnam Memorial showed that all three experienced increased PTSD symptoms (6). In a subsequent study of 94 male Vietnam veterans, Parsons et al. found that both those who attended and those who did not attend the Vietnam Memorial's dedication showed intensification of stress symptoms, especially anxiety, guilt, and sleep disturbance (7). The authors hypothesized that a range of factors including media accounts and community reactions to the dedication contributed to the veterans' increased sensitivity. Thus, a variety of cues related to the original event can be influential in exacerbating or retriggering symptoms.

The recent activities of Operation Desert Storm have received extensive, detailed media coverage and have generated considerable public concern. Recent anecdotal reports by clinicians have suggested that the onset of this war may have reactivated or intensified stress symptoms in some percentage of American war veterans (8). To date, there are no empirical data to substantiate this impression. The present study surveyed female Vietnam veterans by mail to examine whether PTSD symptoms recurred or intensified in a 2-week period after the start of Operation Desert Storm on Jan. 16, 1991. Participants were also surveyed on a range of

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other psychological symptoms and on their use of mental health treatment services to gain additional information about the war's impact.

METHOD

Subjects

Subjects in this study included 76 female Vietnam veterans. (A cohort of 49 female World War II veterans served as a comparison group. Data on this cohort are available from Dr. Wolfe.) Their average age was 49.6 years (range=37–72). Average war-zone exposure for this group would be described as moderate on the basis of previously obtained information (J. Wolfe, J. Furey, P.J. Brown, et al., Women's War-time Exposure Scale, 1990, unpublished manuscript). "Moderate" in this context reflects intermittent exposure to dangerous or life-threatening events (e.g., incoming rocket or mortar attacks), close contact with the dead and dying, and other similar severe stressors.

All women volunteered to participate in this project without reimbursement. Participants did receive a follow-up letter thanking them for their assistance and a summary of the survey's results.

Procedure

The participants were drawn from lists previously compiled by one of us (J.W.) for use in projects at the National Center for Post-Traumatic Stress Disorder, Women Veterans Program. Because female veterans are often difficult to locate, many names were assembled through the assistance of other veterans. Pre-Operation Desert Storm psychometric data—scores on the SCL-90-R (9) and a revised version of the Mississippi Scale for Combat-Related Posttraumatic Stress Disorder (10)—were available for those women who had previously participated in another research project at the national center. No participants were seeking services for PTSD from the Women Veterans Program at the time of the survey.

Participants were contacted by mail in late February–early March 1991 and were asked to complete the Veterans Update Form (J. Wolfe, 1991, unpublished manuscript) and the SCL-90-R (9). The SCL-90-R, rather than a PTSD instrument, was selected to provide more general indices of psychological distress. Subjects who did not reply were not contacted again by mail because of the limited period for inquiry.

The project had an overall return rate of 29%. The rate of return was partially affected by mailing constraints; approximately 7% of the surveys lacked correct current addresses. Telephone contact with 10% of the nonrespondents who were comparable in age, education, and war-zone exposure to respondents indicated no difference on any items of the survey questionnaire between these two groups. Furthermore, analyses of pre-Operation Desert Storm data on the SCL-90-R revealed no significant differences between nonrespondents and subjects who participated in the study.

Psychometric Assessment

Veterans Update Form. A brief self-report measure was developed for the study to delineate change in the three *DSM-III-R* cardinal PTSD symptoms of reexperiencing, avoidance/numbing, and hyperarousal after the onset of Persian Gulf warfare involving American troops. Questions were based on a 5-point Likert-type scale; scores ranged from 0 (no change) to 4 (extremely increased) for each major symptom category. Respondents also answered several questions about their past and current use of psychological treatment as well as changes in mental health needs, with Jan. 16, 1991, used as the point of reference.

SCL-90-R. This widely used, 90-item, self-report measure instructs subjects to rate a series of broad-based psychological symptoms. Traditional symptom ratings of 0 (no distress) to 4 (very distressed) were employed. Scoring yields nine scaled symptom dimensions: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Empirical research on this instrument has documented satisfactory reliability and validity for each of the symptom scales (9).

Revised Mississippi Scale for Combat-Related Posttraumatic Stress Disorder. Participants had previously completed the revised Mississippi scale, a variation of the 35-item, self-report scale designed to measure the cardinal symptoms of PTSD. Prior research has demonstrated that the scale possesses acceptable reliability and validity as well as other psychometric properties (sensitivity=0.93, specificity=0.89, overall efficiency=0.90) (10). The revised version incorporated minor semantic changes in three questions that previous pilot data indicated were inappropriately phrased for use with female veterans.

Statistical Analyses

On the basis of previously available data, the Vietnam cohort was divided into groups with and without PTSD. A series of analyses of variance (ANOVAs) was used to compare group symptom reports by using current *DSM-III-R* criteria for PTSD. Chi-square analyses were carried out to assess any treatment utilization differences. Multivariate analyses of variance (MANOVAs) and analyses of covariance (ANCOVAs) were then conducted to examine changes in SCL-90-R profiles for the two Vietnam veteran groups.

RESULTS

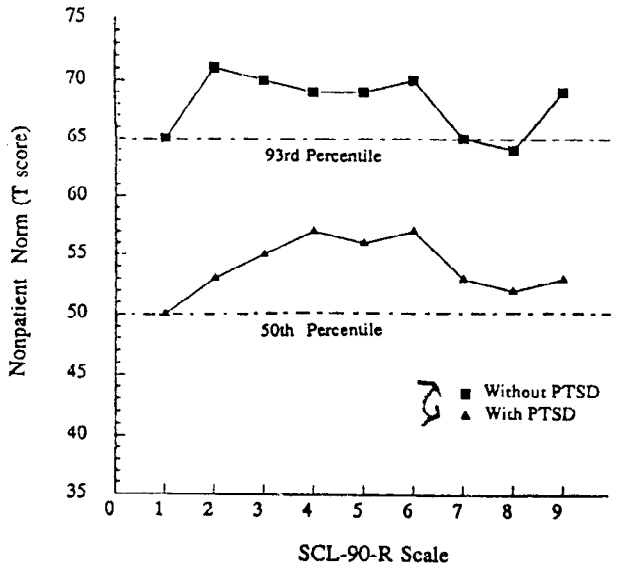
Previously collected data on PTSD symptoms (scores on the Mississippi scale for PTSD) before Operation Desert Storm were used to divide the Vietnam cohort

TABLE 1. PTSD Symptom Change After the Beginning of Operation Desert Storm for Female Vietnam Veterans Without and With PTSD[a]

	Without PTSD[b] (N=50)		With PTSD (N=26)		ANOVA		
Symptom	Mean	SD	Mean	SD	F	df	p
Reexperiencing	1.2	1.3	2.4	1.3	14.35	1, 74	<0.001
Avoidance/numbing	0.7	1.2	2.3	1.2	29.58	1, 74	<0.0001
Hyperarousal	1.2	1.4	2.7	1.0	23.49	1, 74	<0.0001

[a]0=no change, 1=slightly increased, 2=somewhat increased, 3=very increased, 4=extremely increased.
[b]The t tests comparing symptom changes in this group from before to after Operation Desert Storm indicated greatest increases for symptoms of reexperiencing (t=3.34, df=49, p<0.005) and hyperarousal (t=3.27, df=49, p<0.005).

FIGURE 1. Mean SCL-90-R Scores During Operation Desert Storm for Female Vietnam Veterans Grouped by Scores on the Mississippi Scale for Combat-Related Posttraumatic Stress Disorder



into groups without PTSD (N=50) and with PTSD (N=26) groups. These groupings are comparable to divisions used with male Vietnam combatants to determine the PTSD diagnosis (10). Mean *DSM-III-R* PTSD symptom scores were then calculated for both Vietnam groups (table 1). One-way ANOVAs indicated that the group with PTSD had significantly greater increases than the group without PTSD across all three current PTSD ratings: reexperiencing, avoidance/numbing, and hyperarousal. In the group without PTSD, increases were greatest for symptoms of reexperiencing and hyperarousal. There were no such differences for the group with PTSD.

A MANOVA was conducted on the SCL-90-R protocols completed by women in the two groups after the start of Operation Desert Storm; univariate tests showed significant differences between the two groups on all nine dimensions (p<0.005). A series of ANCOVAs was subsequently carried out on the post-Operation Desert Storm SCL-90-R protocols, with pre-Operation Desert Storm SCL-90-R data as covariates. The group with PTSD had significantly higher levels than the group without PTSD on the following three dimensions: somatization (F=11.11, df=1, 71, p<0.005), obsessive-compulsive (F=17.59, df=1, 71, p<0.001), and hostility (F=7.55, df=1, 71, p<0.01). As can be seen in figure 1, the group with PTSD had postwar SCL-90-R T scores that averaged around the 93rd percentile.

With respect to mental health treatment status before and after the start of the war, more veterans with PTSD than veterans without PTSD reported receiving treatment at some point before Operation Desert Storm (χ^2=12.80, df=1, p<0.0005.). Of those veterans not currently in treatment, more with PTSD than without it thought that they should be receiving treatment for PTSD (χ^2=6.61, df=2, p<0.05).

DISCUSSION

These results offer some of the first empirical data on veterans' responses to the recent crisis in the Middle East. Female Vietnam veterans clearly have been affected to some degree by the recent initiation of a large-scale U.S. military conflict. Because the survey was conducted close to the conclusion of the war, when a cease-fire was imminent, it is likely that these findings represent a conservative estimate of the war's impact on veterans.

Analyses of responses indicated that female Vietnam veterans with high levels of preexisting PTSD symptoms showed greater increases across symptom dimensions, which suggests that they were most vulnerable to symptom exacerbation after reexposure. This finding is consistent with reports that individuals who are unable to resolve or integrate earlier traumatic experience are at significant risk for the retriggering of stress-related symptoms when they are faced with events similar to the original stressor (11). Nonetheless, the demonstrated symptom increase across the Vietnam cohort in general suggests that a variety of veterans were at risk for reemergence of symptoms after the start of Operation Desert Storm. This broader pattern of reactivity is consonant with clinical reports from various sites within the Veterans Affairs system which indicate that two types of male veterans have recently sought increased treatment: those previously known to have problems with PTSD and those who were apparently asymptomatic before the start of the Gulf conflict (8).

The issue of more indirect forms of stressor exposure, as raised in this study, is important. As with other types of traumatic events (e.g., rape), a wide range of environmental cues appear capable of stimulating symptomatic

response in previously exposed individuals. The majority of the Vietnam cohort in this study were theater veterans, many of whom felt that they knew firsthand what military personnel were undergoing in the war zone.

In the case of Operation Desert Storm, an unusually large array of cognitive and perceptual cues is likely to have added to the reactions felt among both those who had and those who had not been exposed to a war zone. Media coverage was extensive, and public and community response, while generally positive, served to heighten awareness of the war's presence and its potentially dangerous consequences. Anticipation of loss or trauma may also have played a role in veterans' reactions to the events of war. In a recent study conducted before the onset of Operation Desert Storm, anticipatory anxiety was found to contribute to a range of symptomatic responses in military wives and children of troops deployed to the Persian Gulf (12). Thus, a variety of factors influence coping and adjustment under stress.

One particular strength of this study is that it contained symptom measures obtained before the start of Operation Desert Storm, which permitted controlled comparison of changes in response to the war. Results suggested increases in levels of general psychiatric distress (e.g., somatization, hostility) that may extend beyond the specific diagnostic criteria for PTSD. Inspection of items on the obsessive-compulsive scale (elevated in the group with PTSD) indicated that many of the endorsed items reflect symptoms consonant with intensification of stress syndromes, for example, increased ruminative or intrusive thoughts. Further examination of the SCL-90-R scales in conjunction with broader diagnostic assessments will help to delineate the nature of symptom intensification after reexposure and its specificity for the PTSD diagnosis.

At the present time, there are no data on whether veterans who experienced increased symptoms secondary to the onset of Operation Desert Storm are at greater risk for subsequent psychological or health-related problems; consequently, planning of treatment resources remains uninformed. Data from this study suggest that it is important for mental health professionals to attend to factors associated with the reemergence of stress reactions and to consider the need for early clinical intervention. The importance of such intervention is supported by Laufer and others who have observed the adverse effects of recurrent war stress on subsequent functioning throughout the life span (13).

Overall, the data in this study suggest that further investigation of the response of previously exposed veterans to subsequent trauma is also worthwhile for scientific purposes. Tracking of these responses is required to determine whether these reactions are sustained and, if so, what their effect is on social and vocational functioning. In addition, future research comparing female veterans' responses to those of male veterans will shed light on whether gender is a factor in the genesis and mediation of the response to recurrent life trauma (14).

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